

# *A Research on the Strategy to Promote Campus Culture in the Overall Planning of a New Campus - Taking a Campus Planning Scheme of Beijing Jiaotong University as an Example*

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**Abstract:** This paper approaches the overall planning of new campuses of China's colleges and universities from the perspective of culture. Based on a campus planning scheme of Beijing Jiaotong University, this paper studies the relationship between campus culture and its planning and design, and proposes strategies from the perspective of space to reflect campus culture in the planning and design of a new campus from four aspects: overall layout, architecture, landscape and campus facilities, so as to provide feasible ideas for the inheritance of campus culture in a new campus.

## 1. Background and Significance

With the continuous development of higher education and its expansion, the space of many colleges and universities in China cannot meet the living and learning needs of their students, which seriously hinders the development thereof. In general, the old campuses have no possibility of expansion. In order to solve the problem, most colleges and universities would opt for building new campuses in the suburbs of the city or in adjacent cities or provinces.

In the context of a large number of new campuses being constructed, the importance of promoting campus culture on new campuses cannot be overstated. The lack of campus culture is a common problem on new campuses due to the short duration of operation and poor cultural heritage, and is mainly reflected in the following four aspects: lack of proper understanding, lack of overall planning, lack of mechanisms, fragmentation of campus culture due to multi-campus operation<sup>[1]</sup> and lack of campus culture itself<sup>[2]</sup>.

Based on a new campus planning scheme of Beijing Jiaotong University (BJTU), this paper conducts research on campus culture planning strategies, tapping into the cultural connotations of BJTU, providing basic support for new ideas on campus culture construction, and exploring new directions for the innovative development of campus culture.

## **2. The Study on Campus Culture Strategy in the Process of New Campus Planning**

### **2.1. The Relationship between the Overall Campus Planning and Campus Culture**

Campus culture is the key to the development of colleges and universities and the basis for enhancing soft power. Campus culture incorporates material culture (such as cultural characteristics presented through the physical space, environmental landscape, architecture, sculptures and the like) and non-material culture (such as moral ethics, ideologies, various cultural activities and the like).

College campus planning refers to the development of a campus in general, including both material and non-material, while campus planning in a narrow sense refers to the planning and design of the physical space (or the material aspect) of the campus<sup>[3]</sup>. Campus planning can serve as a guide for its construction, create a good culture, build a campus with deep cultural connotations and rich regional characteristics<sup>[4]</sup>, improve the environment and in turn reflect the campus culture, which stands at the very core of the development of colleges and universities.

### **2.2. A Study on the Strategy from the Perspective of Space**

From the perspective of space, the overall planning of the new campus mainly includes the overall layout, environment and architectural factors and can be divided into four levels (from macro to micro): overall layout, architecture, landscape and campus facilities.

## **3. The Campus Culture Strategy in the Campus Planning of BJTU**

As one of the three founding bodies of the Jiaotong University, the history of BJTU can be dated back to 1896. BJTU originated from Beijing Railway Management Institute, China's first higher education institution committed to fostering railway management talents created by the Qing dynasty government. It is the birthplace of modern China's railway management and telecommunication education.

In 1907, Zeng Kunhua, the founder of BJTU, served at the postal department and wrote to authorities to advocate the establishment of a railway management school. His proposal was approved in the same year and land was later purchased to build the campus. In the 1930s, the campus was replanned, emphasizing the architecture with Chinese characteristics with a combination of Chinese and Western elements. However, due to the outbreak of the War of Resistance against Japanese Aggression, this plan was not realized. In the 1950s, the university moved to the vicinity of Shangyuan Village outside Xizhimen, and in 2000 it merged with the Beijing Electric Power College, gradually forming the current campus layout.

### **3.1. The Campus Culture Manifested by the Overall Campus Planning**

#### **3.1.1. The Layout from the Perspective of the Function**

According to the rules of university operations and talent training, the traditional campus planning of grouping according to the functions is replaced by the concept of “shuyuan” (private research and educational institutions in ancient China, usually known in English as “academies”). The concept of “shuyuan” bears a traditional cultural heritage and to a certain extent, it also represents classical Chinese architectural ideas and therefore becomes a cultural expression.

As shown in Figure 1, the five academies of BJTU are planned in combination with the site selection, and are named after the old school motto of Jiaotong University: “jingqin” (study assiduously), “dun du” (resolve to succeed), “guoyi” (act decisively), and “zhongshu”(manage affairs with magnanimity), and the new motto of “zhixing”(know and do).



Figure 1: The Layout of a campus of BJTU from the Perspective of the Function (self-drawn)

### 3.1.2. The Layout from the Perspective of the Space Design

The space design draws on the essence of traditional culture, incorporates the cultural connotations of BJTU while giving a full account of its planned road network, and forms a structure of “one axis, two belts, three cores, five academies and one track” is shown in Figure 2:

One axis: the central axis of the campus;

Two belts: the urban landscape belt and the school-town shared belt.

Three cores: the core area for communication and exhibition, the core area for knowledge sharing and the core area for research and innovation (listed from south to north);

Five academies: a grouping of five “shuyuan” (academies);

One track: a scenic track of experimental design.



Figure 2: The Layout of a Campus of BJTU from the Perspective of the Space Design (self-drawn)

### 3.1.3. The Layout from the Perspective of the Traffic Organization

The roads inside the campus are designed in accordance with the upper-level plan, while leaving the location of the original road intersections and the setting of municipal roads intact. Taking the main roads of the campus as the backbone, combined with secondary roads and feeder roads, a complete traffic system is formed as shown in Figure 3. The road design of BJTU takes into account the characteristics of "jiaotong" (traffic) and is pedestrian-oriented, with motorways and pedestrian lanes forming an integrated and well-defined road network system.



Figure 3: The Traffic Planning for Motor Vehicles on the New Campus of BJTU (self-drawn)

As shown in Figure 4, different groupings of the buildings are linked by scenic trails to form a pedestrian loop that passes through the groupings, which run through open spaces such as squares, green spaces, water and boulevards.



Figure 4: The Traffic Planning for Pedestrians on the New Campus of BJTU (self-drawn)

The campus is approximately 2 km long from north to south and is divided by two municipal roads. To facilitate traffic within the campus, pedestrian bridges are used to cross the motorway and connect various groupings and buildings. The design of the pedestrian bridge highlights the “jiaotong” (traffic) feature.

### 3.2. The Campus Culture Manifested by Architectural Features

The architectural style of the new campus refers to the historical images of Jiaotong University. To construct various campus buildings with the characteristics of BJTU, the cultural and historical heritages were given full play and thus incorporated into the design of the new campus.

Each “shuyuan” (academy) integrates the functions of teaching, experiment, accommodation, diet, sports, parking, etc., which can meet the daily needs in terms of study, research, office life and living, becoming a “home” for students, encouraging interdisciplinary integration and collaborative

innovation.

The buildings in the central area, such as the Library, the Teaching and Experiment Building, the Student Activity Centre and the School Museum, have their own individual features while catering to the overall harmony of the buildings. Using warm red as the main color, these buildings bear their own architectural characteristics, reflecting the culture of BJTU at the same time.

Among them, the museum, as a representative building of the campus culture, needs to be elaborately designed to carry the campus culture to the maximum. At the same time, the design of the rail line is incorporated into the museum, and the museum is designed in the style of a station, parking a series of locomotives from steam locomotives and internal combustion locomotives to high-speed trains, reflecting the campus culture and historical heritage of BJTU.

### 3.3. The Campus Culture Manifested by the Campus Environment

The open space of the campus follows the principles of appropriateness, sustainability and diversity, and establishes a multi-level landscape system covering the overall urban landscape, the core landscape of the campus, the shared landscape of the university and the landscape of the courtyard. The planning and design of the campus are tailored to the situation to create a green and ecological campus that is well-defined and has a variety of views as shown in Figure 5.

Among them, the scenic rail line is of experimental design as it is used for teaching, training and experimentation by rail transit-related colleges. The rail line leads to the university museum, where locomotives of different historical stages will be placed as a cultural representation of the campus.



Figure 5: The Planning of Campus Landscape (self-drawn)

The main entrance area covers the south entrance, the entrance square, the school museum, the academic exchange center, the public teaching building and the student activity center. The design is neat and grand, with an emphasis on etiquette.

When considering architectural designs, statues can be used. For example, in front of the entrance square, the same Siyuan Monument as that of the Haidian campus is set up to arouse resonance; and statues of representative figures of BJTU, industry and famous alumni, such as the statue of Zhan Tianyou and Mao Yisheng, are arranged in the green belt within each grouping of buildings.

### 3.4. The Campus Culture Enriched by the Campus Facilities

A standardized, personalized and humanized signage system is adopted in the planning and design of the new campus, and the culture of BJTU is fully considered with cultural symbols such

as the university logo being used in the signage system. All kinds of facilities in the new campus, including rubbish bins, road signs, road markings and signage, fully reflect the cultural elements of BJTU and highlight its cultural characteristics.

While meeting safety requirements, different brightness standards and light pole heights are applied to different roads to better showcase the structure of the road. Railway signals are used as a reference to reflect the characteristics of BJTU.

#### 4. Conclusions

The research content of this paper falls within the research of campus culture in the overall planning of the new campus with its scope not limited to the planning itself. Instead, this paper approaches the strategy to promote campus culture in the planning and construction of a new campus.

There is an interactive relationship between campus culture and the overall planning of the new campus, with campus culture serving as the guiding force and the planning of the campus laying the physical foundation for the heritage and development of campus culture.

This paper, therefore, proposes to integrate campus culture into the planning of the campus from the perspective of space from four aspects (overall layout, architecture, landscape and campus facilities.) The campus culture of a new campus is derived from the old one and will continue to evolve through its reasonable planning, and will become an integral part of the campus culture as a whole.

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